



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,152	09/18/2006	Seiji Nagatani	3209-124	7632
7590	02/19/2010		EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 Roland Clarke Place Reston, VA 20191			AUSTIN, AARON	
			ART UNIT	PAPER NUMBER
			1794	
			MAIL DATE	DELIVERY MODE
			02/19/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,152	Applicant(s) NAGATANI, SEIJI
	Examiner AARON S. AUSTIN	Art Unit 1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 04 December 2009.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 16-28 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 18-28 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 18 September 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/06)
 Paper No(s)/Mail Date 12/4/09
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date: _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 18-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 18, lines 1-2 direct the claim to "An electrodeposited copper foil with carrier foil on which a resin layer for forming an insulating layer is formed". Thus the claim appears to be directed to a laminate comprising a copper foil with carrier foil upon which a resin layer is to be formed. It is not entirely clear as to whether the resin layer forming the insulating layer of lines 1-2 is the same as the resin layer of lines 9-14. As the claim could be interpreted as either 1) being directed to the laminate of lines 3-14 upon which an additional insulating resin of lines 1-2 is added, or 2) the laminate of lines 3-14 wherein the resin of lines 9-14 is the same as the resin of lines 1-2, the claims are rendered indefinite for failing to distinctly claim the invention. For purposes of examination the claim is treated as being directed to option 2 above wherein the insulating resin of lines 1-2 is the same as the resin of lines 9-14.

Regarding claim 27, the claim provides for the production of a copper laminate and use of the electrodeposited copper foil with carrier foil on which a resin layer for forming an insulating layer is formed, but, since the claim does not set forth any steps

involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Regarding claim 28, the claim provides for the production of a printed wiring board and use of the electrodeposited copper foil with carrier foil on which a resin layer for forming an insulating layer is formed, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

The remaining claims are rejected as being dependent on a rejected base claim.

Claim Rejections - 35 USC § 101

Claims 27-28 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd. App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US 2004/0038049) in view of Matsushima et al. (US 6,905,757).

Suzuki et al. teach a carrier foil 1 having an overlying interface region 2/3. An electrodeposited copper foil 4 is formed on the interface region. A roughness is imparted to the electrodeposited copper foil 4 at interface 4a in the range of 0.2-2 microns which overlaps the claimed range (paragraph [0075]). As the other side opposite to the interface 4a is not roughened, it is expected to have a roughness less than that of the roughened side 4a of 0.2-2 microns. Further, Suzuki et al. teach a nickel layer and a zinc layer are sequentially applied to the roughened surface 4a of the electrodeposited copper foil 4 (paragraphs [0076]-[0077]). The lamination of the resin layer to the copper layer is taught to cause diffusion of the zinc layer with the nickel layer preventing diffusion into the electrodeposited copper foil (paragraph [0077]). Thus the zinc diffuses into the nickel layer rather than the copper foil thereby creating a nickel-zinc alloy upon the electrodeposited copper foil. As like materials are used in a like manner, the nickel-zinc layer is expected to have rust proofing properties as claimed. Finally, an insulating resin 5 is formed on the electrodeposited copper foil 4 and nickel-zinc layer. See Fig. 3.

Suzuki et al teach the kind of resin is not particularly limited (paragraph [0084]), but the resin as claimed is not specifically taught.

Matsushima et al. teach a dielectric filler containing resin for use in printed wiring boards and copper laminates. The resin comprises 20-80 parts by weight of epoxy

Art Unit: 1794

resin, 20-80 parts by weight of a solvent soluble aromatic polyamide resin polymer, and a curing accelerator (column 3, lines 21-30). Therefore, as Matsushima et al. clearly teach a resin composition having the claimed composition is suitable for use in printed wiring boards and copper laminates therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use the resin of Matsushima et al. to form the resin layer of Suzuki et al.

Regarding claim 19, Matsushima et al. teach the aromatic polyamide resin is obtained from the reaction of an aromatic polyamide resin and a rubber resin (column 4, lines 18-20).

Regarding claim 20, Matsushima et al. teach the resin layer contains dielectric fillers (column 3, lines 21-38).

Regarding claim 21, the dielectric fillers may be considered to be skeletal material as they serve to stabilize and reinforce the resin layer (column 3, lines 21-38). In an alternative interpretation, Matsushima et al. teach the resin may be formed with or without the omission of traditional fillers (column 3, lines 14-20).

Regarding claim 22, the nickel-zinc layer(s) further includes an overlying chromate layer (paragraph [0079]).

Regarding claim 23, Suzuki et al. fail to teach the amount of heat and duration of the lamination step such that the amount of diffusion of the zinc into the nickel layer is identified.

However, the nickel layer starts as essentially pure, 100 wt%, nickel which decreases to 99 wt% or less as zinc diffuses into the layer, thereby overlapping the

claimed ranges. In the alternative, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the amount of diffusion for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Motivation to control the amount of diffusion is provided by Suzuki et al. who teach it is desirable to prevent the zinc from diffusion entirely through the nickel layer and into the copper foil (paragraph [0077]).

Regarding claim 24, a silane couple agent is used to connect the electrodeposited copper layer to the resin layer (paragraph [0080]).

Regarding claim 25, amino-functional silane coupling agents are taught (paragraph [0081]).

Regarding claim 26, the thickness of the electrodeposited copper foil is 9 microns or less (paragraph [0016]).

Regarding claims 27-28, the methods of production and uses are inherent in the structure of the product of Suzuki et al. in view of Matsushima et al. as set forth above. Further, Suzuki et al. teach formation of a copper clad laminate and printed wiring board using the structure described above.

Response to Arguments

Applicant's arguments, see the Remarks, filed 12/4/09, with respect to the request for copies of foreign references, the objection to the abstract, the objections to the claims, the rejections under 35 USC 112, the rejections under 35 USC 101, and the rejections over Suzuki et al. alone and in combination have been fully considered and

are persuasive in light of the present amendments and claim cancellations. These objections and rejections have been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of the newly added claims as set forth above. In as much as some of the Arguments set forth by Applicant may still apply, they are addressed below.

First, Applicant argues Suzuki does not teach an insulating resin layer on top of a rust proofing layer, whereby the insulating resin layer is further characterized with the composition set forth in claim 18. However, as set forth in the previous Office Action, the reference to Matsushima et al. provides one of ordinary skill in the art motivation to use a resin layer having the composition claimed as the resin layer taught by Suzuki et al. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Second, Applicant argues Suzuki et al teaches roughening of the copper foil in contrast with the presently claimed invention which does not apply roughening treatment and requires roughening on both sides of the copper foil. However, the roughening treatment of Suzuki provides a roughness in the range of 0.2-2 microns to interface 4a (paragraph [0075]). As the other side opposite to the interface 4a is not roughened, it is expected to have a roughness less than that of the roughened side 4a of 0.2-2 microns. Therefore, as this roughness overlaps the claimed roughness, it does

not appear that the articles do not overlap in scope even with the roughness treatment. For these reasons the rejections set forth above have been applied to the new claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON S. AUSTIN whose telephone number is (571)272-8935. The examiner can normally be reached on Monday-Friday: 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron S Austin/
Examiner, Art Unit 1794